I. Introduction

The proposed transactions among Comcast, Time Warner Cable (TWC), and Charter Communications (Charter) will exacerbate the competitive harms that resulted from the earlier merger of Comcast and NBC Universal (Comcast-NBCU) distribution and programming assets. In my view, rival multichannel video programming distributors (MVPDs), and their subscribers, will pay higher fees for Comcast-affiliated programming as a direct result of the Comcast-TWC-Charter transactions due to Comcast's increased vertical control of important programming assets and its increased overlap with multichannel video programming distributors ("MVPDs") within the industry. Furthermore, by combining the nation's two largest cable operators and increasing the combined entity's share of MVPD subscribers, Comcast-TWC will have an increased incentive to disadvantage its rivals due to enhanced bargaining power in the programming market. Lastly, I argue the increased competitive harm that results from increased vertical integration requires the Federal Communications Commission (FCC) to adopt stronger remedies than the conditions imposed on Comcast in the Comcast/NBCU Order. The existing conditions suffer from flaws that make them inadequate to address the increased harm.

My analysis is as follows. In Section II, I describe the proposed transactions. I then discuss the vertical harms resulting from the proposed transactions in Section III, where I discuss how the proposed Comcast-TWC-Charter transactions merger increase the vertical harms caused by the Comcast-NBCU merger. In Section IV, I analyze the horizontal aspects of the Comcast-TWC-Charter transactions. I argue that the increased bargaining power Comcast will acquire will result in harm to other MVPDs and their subscribers. I follow the analysis of harms in Section V with an analysis of how the commercial "final offer" arbitration process used by the FCC to ameliorate the competitive harms of the Comcast-NBCU merger has flaws that make the process ineffective at addressing the competitive harm, particularly for smaller MVPDs.

II. Description of Transactions

The Comcast-Time Warner Cable-Charter deal involves actors that have significant presence in both the (downstream) MVPD industry, which distributes video programming to consumers, and the (upstream) video programming industry, which provides this programming to these distributors.

Comcast is the largest cable operator and MVPD in the United States. It provides service to approximately {{[redacted]}} million residential homes[1], and has 22.6 million cable subscribers. It is also a major video programmer. Comcast owns two broadcast television networks, the NBC Television Network ("NBC") and the Telemundo Network, together with ten NBC owned and operated (O&O) local broadcast television stations, all located in major metropolitan markets. Comcast also owns 13 regional sports networks (RSNs). In addition to these broadcast programming assets, Comcast owns a large number of the most popular national cable networks, including top-rated USA Network, along with other powerful brands like CNBC, Golf Channel, Syfy, Bravo, E! Entertainment, and MSNBC. Comcast also holds a 50% interest in Midcontinent Communications, a partnership holding cable

[1] ACA has provided this estimate of residential homes passed and other the estimates used throughout this paper. ACA calculated this number using the lists of census blocks provided by the Applicants (based on their December 2013 National Broadband Map data) in their July 31, 2014 letter, which indicates where the companies make their broadband service available. Using census data, ACA totaled the number of housing units in each census block deemed served by the Applicants. ACA believes, and I agree, that the Applicants' broadband service territory is a good proxy for their video service availability. Due to the fact that applicants might not make video service available to all locations in a census block, these numbers might slightly overstate actual homes passed by the applicants for all services offered by the applicants, but ACA believes despite this fact, the best means of estimating residential video homes passed is to rely on this data which is the most granular available. In this paper, I use the term "homes" passed. My use of "homes" refers to housing units in a census block.

systems in four states serving approximately 212,000 residential subscribers. Midcontinent has a legal right to obtaining programming under Comcast's programming agreements.[2]

Time Warner Cable is the second largest cable operator in the nation. It provides video service to approximately {{[redacted]}} million homes and has 11.4 million video subscribers. It also owns and manages a number of RSNs in top media markets, including Los Angeles and New York. In the Los Angeles market, TWC owns TWC SportsNet and its Spanish language sister station, TWC Deportes, which carry programming from the Los Angeles Dodgers, Lakers, Galaxy, and Sparks and also various high school sports. In the New York market, it has a significant financial interest in SportsNet New York, which carries the New York Mets, Big East Conference games, University of Connecticut sports and New York Jets related programming. TWC also has attributable interests in the MLB Network and the iN Demand programming service. TWC also holds a 67 percent interest in Time Warner Entertainment-Advance/Newhouse Partnership ("TWE-A/N"), which is the sole member of Bright House Networks ("BHN"),[3] which serves about 2.1 million subscribers in a coverage territory of about 9.3 million households.[4]

Charter Communications is the fourth- largest domestic cable operator. It passes approximately {{[redacted]}} million homes, and has approximately 4.2 million residential video customers. Liberty Media has held a controlling interest in Charter since early 2013. Because media executive John Malone holds a substantial interest in Charter through his stake in Liberty Media, and in cable

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[2] *Applications of Comcast Corp. and Time Warner Cable, Inc. for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-57, Comcast letter dated June 25, 2014, at 12, n.30.

[3] Id. at 10.

[4] While TWC does not own BHN or make its managerial decisions, TWC and subsequently Comcast once the transactions are consummated, does sell operational services to BHN and [[[redacted]]]

programmers Discovery Communications and Starz, the Discovery Communications and Starz networks are considered attributable to Charter pursuant to the Commission's attribution rules.[5] Popular networks deemed attributable to Charter under FCC rules include Discovery Channel, TLC, Animal Planet, The Oprah Winfrey Network, and Starz.

In the two proposed interrelated transactions, Comcast will acquire 100 percent of TWC's equity and its 11.4 million customers. Comcast will then divest TWC systems serving approximately 1.5 million existing subscribers directly to Charter; (2) Comcast and Charter will transfer assets, respectively serving approximately 1.5 million existing TWC customers and 1.6 million Charter customers, thereby enhancing the geographic clustering of both companies; and (3) Comcast will form and spin off to its shareholders a new, independent, publicly-traded company ("SpinCo") that will operate systems serving approximately 2.5 million existing Comcast customers. Charter will acquire a one-third interest in SpinCo's equity, and enter into a services agreement with it.[6]

The proposed merger will increase the number of homes that Comcast passes from approximately {{[redacted]}} million to {{[redacted]}} million, and the number of video customers served from 21.1 million to 29.1 million. This takes into account Comcast's subscriber swaps with Charter and divestitures to the SpinCo subsidiary. Post-transaction, the number of homes that Charter passes will change from approximately {{[redacted]}} million to {{[redacted]}} million, and the number of video customers served will increase from 4.2 million to 5.6 million. SpinCo is estimated to pass {{[redacted]}} million

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[5] *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Fifteenth Report, MB Docket No. 12-203 (rel. Jul. 22, 2013), Appendix B, National Programming Services, Table B-1 (listing Liberty Media-affiliated programming networks)

[6] Under the agreement, SpinCo has the right to have Charter purchase programming on its behalf.

homes at its start, and serve 2.4 million residential customers. Comcast will acquire all programming assets of TWC.

In addition, Comcast will acquire TWC's legal interest in TWE-A/N and in the licenses and authorizations held by BHN. Comcast offers no evidence that it will not assume the same existing contractual arrangement with BHN that TWC currently has with BHN.

I will demonstrate that, by increasing Comcast's total number of homes passed through the acquisition of TWC and Charter systems and adding the TWC programming to Comcast's already prodigious suite of programming assets, the transactions will adversely affect a majority of the MVPD subscribers served by *other* distributors. It will also harm customers of Comcast, as Comcast will have incentive to increase the prices it charges to its own video customers.

III. Vertical Harms of the Comcast-TWC-Charter Transaction

As the Commission found in Comcast-NBCU merger review, the combination of Comcast distribution assets and NBCU programming assets gives Comcast an incentive and ability to charge other MVPDs higher prices for its programming. As a result of the current transaction, this existing vertical harm will grow larger because the merger increases the opportunity cost to Comcast from selling programming. There are two ways in which the opportunity cost increases. The first is the increased opportunity of attracting subscribers from rival MVPDs due to the increased number of homes passed by Comcast as a result of its cable system acquisitions. The second is the increased profits of attracting new subscribers due to the greater margins resulting from the merger. The higher opportunity cost for selling its programming due to the merger gives Comcast a greater incentive to raise the price of its programming to rival MVPDs. These MVPDs will pass the increase in programming cost, in part or whole, through to their subscribers.

Another vertical harm that was not considered, but should have been, in the Comcast-NBCU review is the price effect that has Comcast and then subsequently rival MVPDs raising their prices due to the acquisition by Comcast of NBCU programming assets. I will examine this harm. Finally, I note the transaction is expected to increase Comcast's profits per subscriber due to the increased bargaining power that Comcast will gain when it buys programming for its larger volume of subscribers, and how this will harm the subscribers of MVPDs buying Comcast's programming.

I begin by describing the bargaining framework that demonstrates the increased opportunity cost Comcast has in selling its national cable programming networks, NBC O&O stations, and RSNs to other MVPDs. To demonstrate that there will be an overall increase in the vertical harm as a result of this deal, I analyze two categories of firms that would likely face a vertical harm due to the merger in the relevant market for each programming asset. The first is large MVPDs that currently have substantial overlap with Comcast and generally negotiate programming deals on their own. The second are smaller MVPDs, which generally obtain their programming through the National Cable Television Cooperative (NCTC)[7]. Relying on homes-passed data for the applicants and other MVPDs, I show that both categories of firms will face more head-to-head competition with Comcast in the relevant distribution markets if the merger is approved.

A. Bargaining Framework to Analyze Vertical Harms.

[7] The NCTC acts as a bargaining agent for more than 900 small and medium-sized cable operators.

To analyze the vertical harms of the Comcast-TWC merger, I will use the bargaining framework adopted by the FCC for the Comcast-NBCU merger in its analysis of the merger's competitive harms.[8] I will use the Comcast-NBCU framework to demonstrate the two classes of vertical harms that arise from the merger due to Comcast's increased opportunity cost of selling programs to rival MVPDs. The first vertical harm arises from Comcast increasing the number of homes it passes because it will be in a better position to attract subscribers from rival MVPDs. The second vertical harm arises from either increasing the profitability of its video service as a result of efficiencies Comcast creates from the merger and/or its increased bargaining leverage over vendors of inputs to its business. I analyze each of these harms in turn using the framework adopted by the FCC in the Comcast-NBCU merger.

The bargaining framework computes the opportunity cost that Comcast incurs by selling programming to a rival. A higher opportunity cost for providing programming to a rival provides an incentive for Comcast to raise its price for that programming. This increased cost to rival MVPDs will be passed on, in whole or in part, on to the rival MVPD's subscribers in terms of higher cable fees.

The opportunity cost for Comcast to sell its programming assets to a rival MVPD, C, is equal to

$$C = \alpha d\pi$$

In this formula, π is Comcast's monthly profit if it attracts the consumer away from a rival MVPD. The probability that a given consumer leaves the rival provider, d, is referred to as the diversion rate.

[8] *Applications of Comcast Corp., General Electric Co. and NBC Universal, Inc. for Consent to Assign Licenses and Transfer Control of Licensees, MB Docket No. 10-56*, Memorandum Opinion and Order, 26 FCC Rcd 4238, 4247, ¶ 46 & Appendix B, Technical Appendix, Section I.B. (2011) ("*Comcast-NBCU Order*").

The share of subscribers that leave the rival MVPD due to a price increase that will go to Comcast instead of another rival MVPD provider is α.

As in the FCC adopted framework for the Comcast-NBCU merger, I assume the profit derived from obtaining a customer from a rival does not depend on which rival it comes from and that the diversion rate does not change due to the Comcast-TWC-Charter transaction if Comcast's programming price increases or if it is withheld from a competitor MVPD.

I assume, following the Nash Bargaining Solution as adopted by the FCC in the Comcast-NBCU mergers that each dollar increase in the opportunity cost will result in a 50-cent increase in the cost of programming.[9] That is, Comcast captures one half the gains from the increase in opportunity cost when negotiating with an MVPD. Thus, each calculation will only differ by α, the proportion of consumers that go to Comcast. The design of the framework allows us to examine the additional opportunity cost that Comcast has due to the merger, which will show up only due to how α, which is a measure of Comcast's market share and represents the possibility that a consumer could switch to Comcast, changes due to the merger.

B. Framework for Determination of α.

In the Comcast-NBCU transaction, the Commission recognized the harm created by the vertical integration of Comcast's distribution assets with NBCU's programming assets.[10] In this paper, one goal is to show there is an increased incremental harm due to the transaction. By focusing on the increased incremental harm, it's acceptable to generalize the framework that the FCC adopted for the

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[9] *Comcast-NBCU Order* 26 FCC Rcd at 4247, Appendix B, Technical Appendix, Section I.B.
[10] *Comcast-NBCU Order*, 26 FCC Rcd at 4252 – 4259, ¶¶ 34-48.

Comcast-NBCU for determining αs because simply showing an increase in incremental harm is not sensitive to the modeling assumptions made by how subscribers distribute themselves across firms when they leave a rival MVPD.

My analysis is based on the standard discrete choice model.[11] When consumers are facing a decision about what product to purchase, they evaluate the intrinsic qualities of the products and the price of each product in their feasible set of choices. They then choose the product attribute/price combination that maximizes their utilities. A product's quality has features where all consumers may agree about the product's quality, such as the reliability of the product, and features where consumers may have different rankings for the product's quality, such as the program offering. The first types of features are known as vertical features, while the second are known as horizontal or idiosyncratic features. They also may have different willingness's to pay for higher qualities of a particular feature. The differences in consumers' willingness to pay for features and the idiosyncratic preference differences are the reasons that not all consumers will go to the same MVPD.

When consumers are making their decision about which MVPD to subscribe to, they evaluate the offerings' vertical and horizontal features or qualities and the prices for each service. An MVPD will have a larger market share than an MVPD that offers a lower value for a large number of consumers.

To demonstrate, define Comcast's market share in a particular market, including the national market, as s_c. The market share of a rival MVPD that Comcast is selling one of its sets of programs is defined as s_r. The remaining $1\text{-}s_r\text{ -}s_c$ are the markets shares of all the other MVPDs in the relevant

[11] See Anderson, de Palma, and Thisse, *Discreet Choice Theory of Product Differentiation*, 1992 MIT Press.

market. Let θ be the proportion of a rival MVPDs' consumers who could switch to Comcast if a rival raised its prices.

The α for Comcast for a particular market is

$$\alpha = f(s_{c,}, 1\text{-}s_c\text{-}s_{r,} \theta)$$

To interpret this formula, I assume that Comcast and all other firms' market shares are positively related to the value rankings. Furthermore, these value rankings do not change when the Comcast-TWC-Charter transaction is consummated. Thus, as consumers leave a rival MVPD due to a price increase from Comcast, they are more likely to subscribe to Comcast the larger Comcast's market share is. Likewise, they are less likely to go to Comcast, the larger the market shares of all other MVPDs that are not Comcast. That is, α is increasing in the first argument and decreasing in the second argument. Finally, I assume that the larger the proportion a rival MVPD overlaps with Comcast, the higher probability that a subscriber who leaves the rival will go to Comcast. That is, α is increasing in its third argument. These are the only assumptions that I make on α. They are very mild and intuitive assumptions and thus the sign of the harm due to the transaction that I find is quite robust to the modeling assumptions.

The key to the first class of vertical harms is that as consumers leave an MVPD due to the withholding of programming or higher prices, they will go to another MVPD as an increasing function of Comcast's market share, which is a proxy of its value to consumers. This harm will increase by demonstrating that the transactions takes place, the change in overlap between Comcast and a rival MVPDs will rise.

C. Determination of Incremental Vertical Harm due to the Merger

To compute the additional vertical harm due to the merger, one would need to compute for each class of rival, large and small, and for each possible programming category: NBC national cable programming suite, retransmission rights for O&O stations, and RSNs.

The *incremental* increase in harm for Comcast to sell programming to a rival MVPD is

$$H = \pi d N(\alpha_M - \alpha_N)\,/2 \qquad (1)$$

This harm has several aspects. The monthly profit per subscriber is π. The number of subscribers that a rival MVPD has is N. The diversion rate is d. The 2 represents half of the increased opportunity cost that will be passed on as a higher cost to the MVPD and that this cost increase is then passed on to consumers. In determining the harm before and after the merger, I assume the diversion rate of the programming Comcast owns and acquires is the same as before the merger.[12] I also assume that the profits per subscriber of the systems being acquired are relatively similar as those of Comcast.[13] Accordingly, the incremental harm boils down to how many more subscribers are now potential customers for Comcast compared with the pre-merger situation. This is represented by Comcast's α going from a pre-merger situation of α_N to a post-merger and α_M.

D. Analysis of the Overall Increase in Vertical Harms

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[12] Later I mention that Comcast is acquiring TWC's regional sports networks in New York and Los Angeles, and that the diversion ratio in these markets might increase to the extent that Comcast threatens an MVPD with simultaneously pulling its existing programming and the TWC's RSN.

[13] I reviewed data from a respected Wall Street analyst that showed the estimated video gross profit dollars per subscriber for Charter and Comcast to be $37. The estimate for Time Warner Cable was $34. Even though the average profits of TWC subscribers are not quite as high as those for Comcast's current subscribers, it is safe to assume that TWC's profits would trend toward being similar to Comcast within a very short time. This is part of the alleged efficiencies that Comcast is bringing to these subscribers.

In the following, I examine the two groups of firms that will be impacted by Comcast's increased incentive and ability to charge higher prices for its programming as a result of its increase in homes passed. The first group includes large MVPDs that currently have substantial overlap with Comcast and generally negotiate programming deals on their own. These MVPDs include the two direct broadcast satellite providers (Dish and DirectTV), and the two largest telcos providing video service (AT&T and Verizon.) The second group includes more than 900 small and medium-sized MVPDs that generally buy a substantial share of their programming through the National Cable Television Cooperative (NCTC). This group includes MVPDs currently competing head- to-head with Comcast, TWC, and Charter. Some of these MVPDs will compete either more or less against the applicants if the transaction is approved, and some will compete at the same level because the systems they compete against are not changing hands as part of the deal. This second group of small and medium-sized MVPDs also includes those that do not compete directly against Comcast, TWC, or Charter before the transaction and will not compete directly against Comcast, Charter, or SpinCo after the transaction. Given that Comcast negotiates a single master agreement with NCTC and it generally expects all but NCTC's largest members to opt into the agreement, to the extent that Comcast has an incentive to charge higher prices to one or more of its members, Comcast will charge these higher prices to NCTC. This means that operators who do not compete directly with Comcast, but opt-in to NCTC's master agreements, will also be harmed.

Not included in these categories are large MVPDs that generally negotiate programming deals on their own, but who do not currently have significant competitive overlap with the applicants. With respect to negotiating for Comcast programming, these operators include: Charter (including SpinCo), Cox, Cablevision, BHN, and Midcontinent. With respect to Charter programming, these operators will include: Comcast, Cox, Cablevision, and BHN, and Midcontinent.

There are four main classes of programming assets that Comcast owns or will own after the merger that need to be assessed: (1) the suite of national cable programming networks owned by Comcast; (2) the NBC Network O&Os in ten designated market areas (DMAs); (3) the RSNs that Comcast owns; and (4) the two RSNs that TWC currently owns that will pass to Comcast. My report focuses on the harms caused to MVPDs that carry the first two categories of programming.[14]

E. Vertical Harms Involving Large MVPDs that Compete with Comcast

I first take up the harms from the merger for MVPDs that currently have large competitive overlaps with Comcast and generally obtain their programming from programmers through direct deals. This group includes: DirectTV, Dish, Verizon, and AT&T. In the following, I examine whether there is a competitive increase for Comcast's national cable programming networks and its O&O markets.

Service from a direct broadcast satellite (DBS) MVPD is generally available over the entire United States, which generally includes all areas served by Comcast, TWC, and Charter. The total number of homes in the United States is approximately 133 million.[15] According to information provided by Comcast, the deal will increase the number of homes passed by Comcast from approximately {{[redacted]}} million to approximately {{[redacted]}} million. Accordingly, the DBS providers'

[14] With regard to Comcast's nine RSNs, the precise footprint of the RSNs is not publicly available, making an analysis of the impact difficult to quantify or reach qualitative conclusions. Therefore, I do not include this analysis in my report. I would encourage the Commission to request from Comcast the census blocks in which its regional sports networks are made available to MVPDs, and amount of sports programming available to be offered by an MVPD from the RSN in each census block, in order for the data to be subsequently available to commenters to make more certain determinations on this issue.

[15] Data for the number of housing units in 2013 comes from SNL Kagan, U.S. Multichannel Industry Benchmarks, http://www.snl.com/interactivex/MultichannelIndustryBenchmarks.aspx?startYear=2013&endYear=2014 (visited August 19, 2014). This number is equal to the total number of housing units in all census blocks in all 210 designated market areas, the non-designated market areas of Alaska, and Puerto Rico.

competitive overlap with Comcast will increase about {{[redacted]}} from {{[redacted]}} to {{[redacted].}} The increased competitive overlap will result in a higher opportunity cost that will give Comcast a substantial incentive to raise prices for its national programming to these MVPDs.

As a result of Comcast's acquisition of TWC's interest in TWE-A/N, Comcast will also have an incentive and ability to charge DISH and DirecTV higher prices in markets where the DBS providers compete against BHN. BHN matters to Comcast's profits in via two different ways. First, TWC – which will be united with Comcast after the transactions are completed – provides services to BHN. As BHN becomes more profitable, Comcast will be able to raise the price for these services because their value to BHN will increase. This effect arises from various bargaining models including the Nash Bargaining Solution. Second, [[[redacted],]] the more subscribers that Comcast has to offer programmers the more bargaining power and hence lower price it can obtain. [[[redacted]]] given Comcast's historic ability to obtain the lowest prices in the industry for programming. When Comcast negotiates with programmers, programmers will realize that BHN will not negotiate with them separately, and that failure to reach an agreement with Comcast will mean the loss of access to not only Comcast's customers, but also to BHN's customers. Therefore the more customers served by BHN, the more bargaining power that Comcast will have in its negotiations. Given Comcast's interest in preserving BHN's customers, Comcast will have an incentive and ability to charge higher prices to BHN's MVPD rivals. BHN currently passes approximately 4.1 million homes.[16] Taking into account BHN's competitive overlap with the two DBS providers, which accounts for about 3% of the DBS providers' footprint, these DBS providers' competitive overlap with Comcast combined with their competitive overlap with BHN amounts to a total increase in competitive overlap of {{[redacted]}} for each company.[17]

There is also an increase in Comcast's opportunity costs regarding retransmission consent for the NBC O&O stations. None of the spinoffs to Charter and SpinCo come from any of DMAs served by the NBC O&O stations. However, in four of the markets – Dallas, Los Angeles, New York, and San Francisco – Comcast will have a larger presence due to its acquisition of TWC (Los Angeles and New York) and its swap of systems with Charter (Dallas and San Francisco). According to data supplied by Comcast, DirecTV and DISH Network will see an increase equal to {{[redacted]}} from {{[redacted]}} to {{[redacted]}} due to an increase in Comcast's homes passed in these markets. Thus, Comcast will have an incentive to raise its retransmission consent prices in these four markets to the national MVPDs, which will result in higher prices for the subscribers of these MVPDs, because part, if not all, of the increase in cost will be passed onto the subscribers.

For Verizon's FiOS service,[18] the competitive overlap with Comcast will {{[redacted]}} from [redacted]}} to {{[redacted]}} This change is due to Comcast's acquisition of systems in the following markets: New York, Los Angeles, Dallas, Buffalo, Syracuse, Albany, and Palm Springs. Verizon also competes against BHN in the Tampa-St. Petersburg (Sarasota), FL market. BHN's

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[16] This number is derived based on Bright House Networks reporting of housing units passed on the National Broadband Map.

[17] I recognize that a customer coming to BHN from a rival MVPD is different than if it went to Comcast. I also acknowledge that getting subscriber is more profitable for it than if the subscriber went to BHN. My view is that while the profit is not as high for such a subscriber it is still positive and raises the opportunity cost for Comcast to selling programming to BHN's rival MVPDs.

[18] To determine Verizon FiOS's homes passed, ACA relied on the company's homes passed data submitted to the National Broadband Map for its FTTH service.

footprint overlaps with 7% of Verizon's. Totaling the change in Verizon's competitive overlap with Comcast and the competitive overlap with BHN results in an overall {{[redacted].}}

For Verizon's FiOS service, there is also a change in its competitive overlap in the NBC O&O markets. Their competitive overlap with Comcast in the NBC O&O markets with Verizon {{[redacted].}} from {{[redacted]}} to [[redacted]}} The change is affected by Comcast acquiring systems the New York, Los Angeles, and Dallas markets.

Due to an inability to determine with precision the video footprint of AT&T's U-verse service, I am omitting them from this analysis, but return later to discuss that a conclusion can be reached about the overall harm of the Comcast-TWC-Charter deal to the MVPD industry and its customers as a result of Comcast's vertical integration and increased competitive overlap.

F. Vertical Harms for Smaller MVPDs Who Purchase Their Programming Through NCTC

I estimate that the competitive overlap with NCTC, including all of its members, except for the four largest (Verizon, Cox, Charter and Cablevision), who rarely participate in NCTC deals,[19] will {{[redacted]}} of homes passed, representing a percentage {{[redacted]}} for Comcast, and around {{[redacted]}} when BHN's service area is taken into account.[20] To reach this conclusion, ACA relied upon various public and private sources to determine the footprint of its members, including the National Broadband Map, Warren Communications data, public disclosures by individual companies, and private discussions with individual companies. ACA's analysis shows the greatest amount of increased overlap is with companies such as {{[redacted]

[19] Midcontinent Communications is a member of NCTC, but due to its right to opt into Comcast's programming deals, they too have been excluded.
[20] See footnote 17.

[redacted].}} Companies like {{[redacted]}} show net decreases in overlap. When BHN's service territory is included, Wide Open West! and CenturyLink add to the level of competitive overlap with Comcast due to their existing competition with BHN.

With respect to the competitive overlap of NCTC members with Comcast in the NBC O&O markets, the percentage change is affected by Comcast's acquisition of TWC's systems in New York, Los Angeles and Dallas. Specifically, the NCTC members' competitive overlap with Comcast {{[redacted]}} of homes, driven largely by {{[redacted]

Taking into account the total video homes passed by NCTC members in NBC's ten O&O markets, there's competitive overlap {{[redacted].}}

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Although precise information on all MVPDs is not available, I feel confident reaching the conclusion that the Comcast-TWC-Charter deal will result in an overall increase in vertical harm to consumers based solely on the change in competitive overlap between Comcast and the rival MVPDs for which I have data.[21] I reach this conclusion by taking account of the fact that MVPDs serve

[21] The same conclusions about Comcast's opportunity cost increasing as a result of this deal may be reached with regard to Charter's opportunity cost with respect to programmers that are attributable to it, like Discovery and Starz. The deal increases Charter's homes passed from [[redacted]}} to {{[redacted]}}, and when SpinCo is included, which passes {{[redacted]}} homes, Charter's total homes passed totals {{[redacted].}} With regard to the DBS providers this is an {{[redacted]}} for Charter, and {{[redacted]}} when the change for Charter is added to the change for SpinCo. With regard to members who regularly participate in NCTC deals, the Charter swaps with Comcast results in these MVPD's competitive overlap with Charter {{[redacted]}}. Including SpinCo, the combined overlap is {{[redacted]}}. ACA's data Verizon's competitive overlap with Charter {{[redacted]}}, and ACA does not have reliable data for AT&T. Given these results, I believe consumers overall will likely be harmed by the Comcast-TWC-

approximately 100 million customers. Excluding the customers of Comcast (29.1M subs), BHN (2.1M subs) and MidContinent (0.2M subs), who will not be harmed by Comcast's increased vertical integration, if the deal is approved the universe of subscribers served by other MVPDs and potentially harmed decreases to 68.6 million households. Of these 68.6 million households, some are served by large MVPDs who generally obtain their programming from programmers through direct deals but do not substantially compete with Comcast now, and will not if the deal is approved. Subscribers to these MVPDs are unlikely to see an increase or decrease in harm if the Comcast-TWC-Charter deal is approved. These are: Charter (5.6M subs), Cox (3.2M subs), Cablevision (2.8M subs), and SpinCo (2.4M subs). In total, these MVPDs will account for 14 million subscribers. This leaves MVPDs serving approximately 54.6 million subscribers that may be harmed by the Comcast-TWC-Charter deal. As Table 1 below shows, of these 54.6 million subscribers, 34.3 million (62%) are served by the two DBS providers, who will see an increase in their competitive overlap with Comcast due to Comcast's acquiring more systems, and who will see higher prices for their customers. Verizon, who serves 5.4M homes, will see a {{[redacted]}} in its competitive overlap with Comcast. Thus, three operators serving 39.7 million households (representing 72% of all subscribers served by operators potentially affected by the Comcast-TWC-Charter deal) {{[redacted]}} Also considering smaller cable operators that generally negotiate direct deals in the aggregate, there is {{[redacted]}}. In total, these operators serve approximately 9 million subscribers. Thus, among MVPDs serving 54.6 million subscribers, those serving 49.2 million subscribers (representing 90% of all subscribers served by operators potentially affected by the deal) {{[redacted].}} As discussed, due to a lack of data on AT&T U-verse, it is not possible to

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Charter deal as a result of the increased homes passed of Charter and SpinCo and its competitive impact on MVPDs who serve a majority of customers whose MVPDs are affected by the vertical harm.

reach a conclusion with regard to its 5.9 million subscribers, but even if there were a net decrease in harm, {{[redacted]}}. Therefore, the deal will result in a net harm to the marketplace as a result of the vertical harm based on {{[redacted]}}

Table 1.

MVPDs	Subs	Pre Merger Competitive Overlap with Comcast	Post Merger Competitive Overlap with Comcast	Difference	Competitive Overlap with BHN	Total Difference
DIRECTV	20.2M	{{[redacted]}}	{{[redacted]}}	[redacted]	3%	[redacted]
DISH Network	14.1M	{{[redacted]}}	{{[redacted]}}	[redacted]	3%	[redacted]
NCTC	9.0M	{{[redacted]}}	{{[redacted]}}	[redacted]	4%	[redacted]
Verizon	5.4M	{{[redacted]}}	{{[redacted]}}	[redacted]	7%	[redacted]
AT&T	5.9M	N/A	N/A	N/A	N/A	N/A

G. Vertical Harm: The Price Effect for Comcast Subscribers

In the FCC's analysis of the vertical harm of the Comcast-NBCU merger, it found that Comcast would have an incentive to charge higher prices to rival MVPDs for the newly acquired NBCU programming than NBCU had alone due to Comcast's higher opportunity cost for selling the programming to its rivals. The analysis did not take account of another set of vertical harms arising from the merger. These harms stemmed from Comcast's incentive to raise prices to its own subscribers due to its acquisition of NBCU programming. Before the merger, if Comcast raised the price to its subscribers and then lost some of them, it would make no profits at all on the lost subscribers. Once Comcast acquired the NBCU programming, if it raises its price to subscribers and some of them leave for other MVPDs, Comcast will still make some profits from these lost subscribers by selling its programming to the other MVPDs. This effect will increase Comcast's incentive to raise its own subscription price, and is in addition to the increased opportunity cost effect previously identified with respect to the Comcast-NBCU merger. With this higher opportunity cost, Comcast will charge more for the programming to its subscribers, but will experience less loss in profit due to subscriber defections. Thus, not only were Comcast's rivals hurt by the merger with NBCU, but Comcast's own subscribers were hurt.

To see this effect algebraically, we can write Comcast's profits as

$$\pi = p^C \alpha_C\big(p^C, p^R(\omega^C)\big) + \omega^C \alpha_R(p^C, p^R(\omega^C))$$

The first terms are the profits that Comcast gets from its own subscribers. It is the price that Comcast charges them, p^C, times Comcast's market share α_C, which is a function of Comcast's subscription price and the subscription of the rival p^R. This subscription price is a positive increasing function of the price that Comcast charges for its programming, ω^C. The second set of terms is the profits that Comcast obtains from selling its programming to the rival. It is the price of the programming times the rival's market share. An increase in Comcast's subscription price Δp^C results in a change in profits of

$$\Delta\pi = \Delta p^C * \alpha_C\big(p^C, p^R(\omega^C)\big) + p^C * \Delta\alpha_C/\Delta p^C * \Delta p^C + \omega^C * \Delta\alpha_R/\Delta p^C$$

If Comcast did not have programming to sell to its rival, then the first two terms of the change in profits represent the standard trade-off that a firm faces when contemplating a price rise: the increase in revenue from the consumers that continue to subscribe vs. the loss in subscribers due to the price increase. At the margin, Comcast would just balance these two. The third term represents the increase in Comcast profit by the rival's market share growth due to Comcast's price increase times the price that Comcast charges to its rival for its programming. As Comcast raises its subscription price, this increases the rival's market share. This added effect induces Comcast to charge a higher price to its subscribers than if it did not have programming.

Furthermore, this additional Comcast subscriber price effect generates an additional harm to the subscribers of the rival MVPDs subscribers. In almost all standard oligopoly pricing models, if one competitor raises its price, its rivals will raise their prices due to the reduced outside options of its current customers. That is, when a firm raises its price, this softens price competition among the rival firms. In economic terms, the firms' prices are known as strategic compliments and their best response to a higher price by a competitor is to increase their price.[22]

Although this harm was not identified in the Comcast/NBCU merger review, it occurred and has existed since that merger was approved. Of relevance to the pending transaction is the fact that Comcast's incentive to raise its rivals costs is now increasing due to Comcast/TWC, and that these pricing effects on Comcast customers will further increase as a result of the merger.

H. Increase in Profits Per Subscriber and Higher Opportunity Costs

I discuss now how the alleged efficiencies that Comcast claims for the merger will raise its opportunity cost of providing programming to rival MVPDs. In the previous discussion, I assumed that Comcast's profit per subscriber for the systems it is acquiring would be the same as Comcast's profits per subscriber for its existing systems. Next, I argue that Comcast's profits per subscriber for its existing systems are likely to increase due to the deal, and this will increase its incentive to extract

[22] See Multimarket Oligopoly: Strategic Substitutes and Complements.by Jeremy Bulow, John Geanakoplos and Paul Klemperer, *Journal of Political Economy*, 1985, Vol. 93, 488-511.

higher prices from rivals to the systems where it's acquiring, and from rivals of its existing systems that remain within Comcast's control.

I. Efficiencies Gained by Comcast and Increased Incentives to Raise Program Prices

First, I address the incentive to raise programming prices due to the "efficiencies" that Comcast claims. In its FCC filings, Comcast claims that there are large benefits to consumers due to increased efficiencies from the merger. Rosston and Toppler state that:[23]

> To the extent that the firm earns positive cash flows from each additional customer, a greater scale will result in a larger stream of positive cash flows. Comcast uses the net present value framework in helping to evaluate business decisions.

Thus, the alleged efficiencies due to the merger will result in higher profit per Comcast subscriber. This will increase the opportunity cost to Comcast of providing programming to rival MVPDs in areas where it is acquiring systems and where its current systems exist and thus increase the cost of such programs.

Rosston and Toppler describe the possible efficiencies for the X1 technology and for video on demand (VOD).[24] Both of these alleged efficiencies, to the extent they exist, will lead to higher profits per subscriber for all of Comcast subscribers due to increased demand for Comcast's services and more use of video on demand (VOD). The result of higher profitability per subscriber will increase Comcast's opportunity cost of selling its programming to competitors, which will lead to higher prices for competitors to buy Comcast's programming. Rosston and Toppler do not supply any specific cost

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[23] Gregory L. Rosston and Michael D. Topper, "An Economic Analysis of the Proposed Comcast – Time Warner Cable Transaction" ¶ 46 (April, 2014).
[24] Gregory L. Rosston and Michael D. Topper, "An Economic Analysis of the Proposed Comcast – Time Warner Cable Transaction" ¶¶88 and 106 (April, 2014).

estimates for the potential efficiencies. While this makes putting a number on the additional increase in opportunity cost for Comcast difficult, it should be clear that the larger Comcast's claimed efficiencies the larger the incentive to raise its programs' prices. In the next section discussing the horizontal harms of the merger, I describe another factor increasing Comcast's opportunity cost that is a result of Comcast increasing its bargaining leverage with other programmers through the addition of subscribers coming from TWC and Charter. This will allow Comcast to obtain lower programming prices, and better terms and conditions. Whether due to efficiencies or some other explanation, by lowering its programming costs, Comcast will be increasing its profitability per subscriber and increasing its opportunity cost in selling its programming to rivals.

J. Diversion Rate Changes Due to the Merger

Similar to the previous discussion, I assumed the diversion rate for the programming that Comcast owns would be the same after the merger as before. However, I now suggest that the diversion rate for the programming being sold will change in two markets due to the merger. In particular, in the Los Angeles and New York designated market areas, Comcast will acquire two RSNs owned or managed by TWC. In these markets, Comcast already owns NBC O&Os. If negotiations for the newly acquired RSNs are bundled with negotiations for the NBC O&Os, and Comcast threatens to withhold both programming assets from its rivals unless its pricing demands are met, then one would expect a larger number of subscribers to leave the rival and potentially go to Comcast. This harm would be incurred by all MVPDs who operate in the New York and Los Angeles markets, regardless of whether they compete against Comcast.[25]

K. Double Marginalization

A final issue relates to an argument Comcast made in the Comcast-NBCU merger review with respect to the double marginalization effect. The claim was made that before the transaction NBCU charged a positive price to Comcast when its marginal cost for selling the programming was near zero, and that after the merger the firm will treat the price as zero, because it is just an internal transfer within Comcast post-merger. This is a standard argument made in a bilateral monopoly situation. But, as accepted by the FCC in the Comcast-NBCU merger,[26] this reasoning overlooked the fact that Comcast competes with other MVPDs for subscribers and makes profits from selling programming to these rival MVPDs. Once one takes account of this added opportunity cost effect, the double marginalization effect is relatively small.

IV. Horizontal Harms Due to the Merger

There are two sets of horizontal harms created by the merger of Comcast and TWC. The first concerns the addition of TWC's RSNs in Los Angeles and New York City to the vast array of programming offered by Comcast. The second concerns the increased bargaining power that Comcast will have with programmers due increasing its subscriber size from 21 to 29 million.

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[25] This argument is consistent with the FCC's rulemaking that banned separately owned, same market Big 4 stations form coordinating their retransmission consent negotiations. *Amendment of the Commission's Rules Related to Retransmission Consent,* Report and Order and Further Notice of Proposed Rulemaking, MB Docket No. 10-71, (rel. Mar. 31, 2014), ¶ 6. There, the FCC accepted that prices would be higher as a result of the horizontal consolidation. n I.B. (2011) ("*Comcast-NBCU Order*").

[26] *Comcast-NBCU Order*, 26 FCC Rcd at 4247, ¶ 237, Appendix B, Technical Appendix, Section I.B.

A. The Horizontal Harm Due to the Addition of TWC's RSNs.

Under the proposed merger, Comcast will obtain the two TWC RSNs in the two largest cities and media markets of the United States, Los Angeles and New York. In the New York and Los Angeles markets, combining these very valuable assets with the Comcast programming offered there, particularly the two NBC O&O stations, will allow Comcast to raise prices to other MVPDs. In an earlier ruling, the FCC concluded that it was not in the public interest for two of the top four stations in a given geographic area to jointly negotiate retransmission agreements.[27] The FCC found that two separately owned, same market broadcasters who coordinate their retransmission consent negotiations can extract higher prices than when broadcasters negotiate separately. Thus, by adding the very popular RSN in both Los Angeles and New York to the NBC O&O, Comcast would be able to obtain higher prices for both programming than can be obtained today when the programming is negotiated separately. Also, in the Comcast-NBCU merger, the FCC ruled that separate joint ownership of an RSN and local broadcast affiliate would allow the owner to charge higher prices for the programming than if each were owned separately.[28] Accordingly, it is also not in the public interest.[29]

To see how there is horizontal harm in the programming market, take the following example. Suppose an MVPD had the value of $10 for the first network that it purchased and the value of $5 for the second network it purchased. Suppose that the negotiated prices give the programmer and MVPD one half of the surplus. If different programmers own the networks, each would be able to get the marginal value of the second network given that the MVPD was going to buy the other network. Then

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[27] *Amendment of the Commission's Rules Related to Retransmission Consent,* Report and Order and Further Notice of Proposed Rulemaking, MB Docket No. 10-71, (rel. Mar. 31, 2014), ¶ 6.
[28] *Comcast-NBCU Order*, 26 FCC Rcd at 4247, ¶ Appendix B, Technical Appendix, Section I.C.
[29] *Amendment of the Commission's Rules Related to Retransmission Consent,* Report and Order and Further Notice of Proposed Rulemaking, MB Docket No. 10-71, (rel. Mar. 31, 2014), ¶ 6.